

Claims

- [c1] A multiple orifice applicator for applying a fluid material to a work piece, comprising:
an applicator body having an inlet duct;
at least one dispersing chamber in fluid communication with said inlet duct; and
an applicator plate having a plurality of outlet orifices for dispensing the fluid material onto the work piece, said at least one dispersing chamber being at least partially disposed within said applicator plate such that said plurality of outlet orifices are in fluid communication with said inlet duct.
- [c2] The applicator of claim 1, further including a valve disposed in said applicator body and positioned between said inlet duct and said at least one dispersing chamber, said valve being operable to allow the fluid material to flow into said at least one dispersing chamber.
- [c3] The applicator of claim 1, further including a seal generally disposed about said at least one dispersing chamber.
- [c4] The applicator of claim 3, wherein said seal is generally

elastomeric.

- [c5] The applicator of claim 3, wherein said applicator body includes a groove for at least partially receiving said seal.
- [c6] The applicator of claim 1, wherein said plurality of outlet orifices are positioned to dispense a plurality of adjacent rows of the fluid material to collectively create a continuous band of material on the work piece.
- [c7] The applicator of claim 1, wherein said plurality of outlet orifices are arranged in at least two staggered rows of orifices.
- [c8] The applicator of claim 1, wherein the applicator includes at least two dispersing chambers and at least two corresponding independently operable valves.
- [c9] The applicator of claim 8, further including a seal disposed about said at least two dispersing chambers such that said seal is generally positioned between each of said at least two chambers.
- [c10] The applicator of claim 1, wherein said at least one dispersing chamber includes at least one terraced shoulder.
- [c11] The applicator of claim 1, wherein said applicator plate is detachable.

- [c12] The applicator of claim 1, wherein each of said plurality of outlet orifices includes a backing member having a chamfered inlet.
- [c13] The applicator of claim 12, wherein said backing member is comprised of an abrasive-resistant material.
- [c14] The applicator of claim 13, wherein said abrasive-resistant material is carbide.
- [c15] The applicator of claim 1, further including a retaining plate secured over said applicator plate.
- [c16] The applicator of claim 1, wherein said at least one dispersing chamber is fully disposed within said applicator plate.
- [c17] A system for applying fluid material to a work piece, comprising:
a source of fluid material;
a multiple orifice applicator in fluid communication with said source of fluid material, said multiple orifice applicator including an applicator body having an inlet duct, at least one dispersing chamber in fluid communication with said inlet duct, an applicator plate including a plurality of outlet orifices for dispensing the fluid material onto the work piece, said at least one dispersing chamber at least partially disposed within said applicator

plate, and a valve positioned between said inlet duct and said dispersing chamber; and
a mechanism for controlling relative positioning of said multiple orifice applicator and the work piece.

[c18] The system of claim 17, wherein said plurality of outlet orifices are arranged in at least two staggered rows.

[c19] The system of claim 17, wherein said mechanism causes the work piece to move relative to said multiple orifice applicator.

[c20] The system of claim 19, wherein said mechanism is a conveyor belt.

[c21] The system of claim 17, wherein said mechanism causes said multiple orifice applicator to move relative to the work piece.

[c22] The system of claim 21, wherein said mechanism is chosen from the group consisting of: a robot arm, SCARA robot, Cartesian robot, XYZ fixture, and mechanical slide.

[c23] The system of claim 17, further comprising an electronic motion controller that provides signals to control the movement of said mechanism.

[c24] The system of claim 17, wherein said source of fluid ma-

terial is a container located at a position remote from said multiple orifice applicator, and wherein a fluid conduit connects said container to said multiple orifice applicator.

[c25] The system of claim 17, further comprising a metering system in fluid communication with said fluid source and said multiple orifice applicator for metering desired volumes of the fluid material.

[c26] The system of claim 17, further comprising a temperature-conditioning device for temperature-conditioning the fluid material prior to the fluid material being dispensed from said multiple orifice applicator.

[c27] The system of claim 26, wherein said temperature-conditioning device is a temperature exchanger positioned between said source of fluid material and said multiple orifice applicator.

[c28] The system of claim 17, further comprising a source of air pressure to cause the fluid to flow from said source of fluid material to said multiple orifice applicator.

[c29] The system of claim 17, wherein said plurality of outlet orifices are positioned so as to dispense a plurality of adjacent rows of the fluid material that collectively create a continuous band of material on said work piece.

- [c30] The system of claim 17, wherein said at least one dispersing chamber of said multiple orifice applicator includes at least one terraced shoulder.
- [c31] The system of claim 17, wherein said applicator plate is detachable.
- [c32] The system of claim 17, wherein said multiple orifice applicator includes a seal generally disposed about said at least one dispersing chamber.
- [c33] The system of claim 32, wherein said seal is elastomeric.
- [c34] The system of claim 32, wherein said seal is at least partially received in a groove of an applicator body.
- [c35] The system of claim 17, wherein said at least one dispersing chamber is fully disposed within said applicator plate.